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G4D
A6H
Selected US specifications from IPC sub-classes
G04G A63F

(54) Watch with random number generator

(57) A watch 1 includes a numerical display 3 having a table 7 of integers 1 to 49. Each integer in table 7 has associated therewith a display element (not shown) for encircling each number of the table so as to highlight it. The watch incorporates a random number generator which can be actuated by a switch I3 with the watch in a lotto mode. X numbers from the table 7 are randomly selected and highlighted by actuating of a respective encircling display element. The last group of random numbers produced by the watch are stroed and can be recalled. Suitable actuation of the watch switches can limit the range of the numbers in the table from which the randomly selected numbers are taken and can also vary how many numbers are randomly selected.

FIG.1

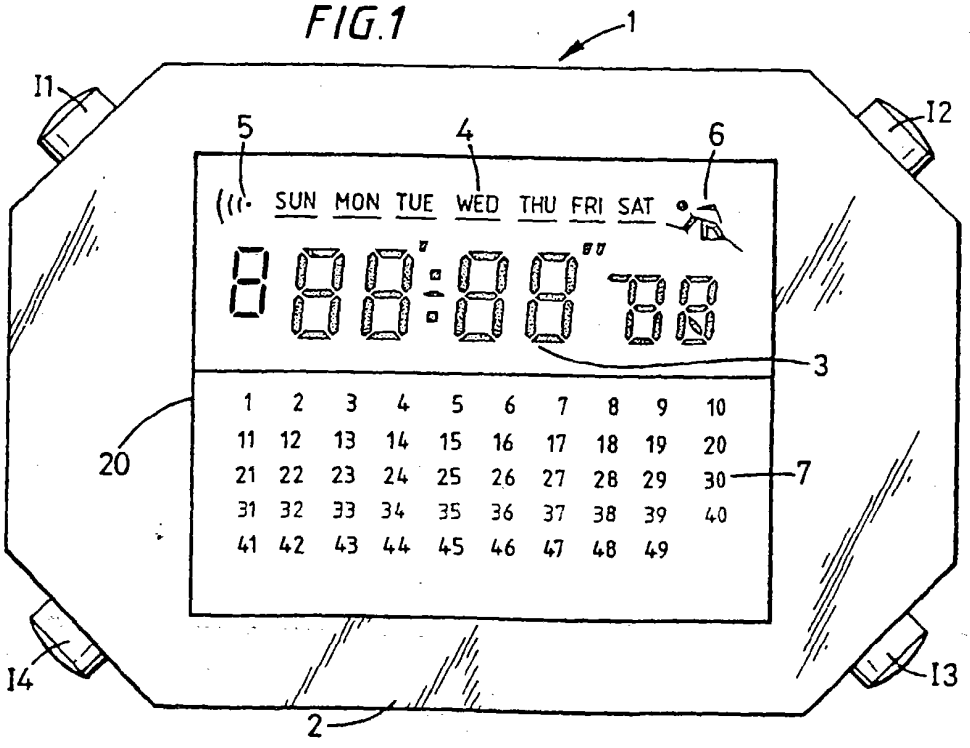

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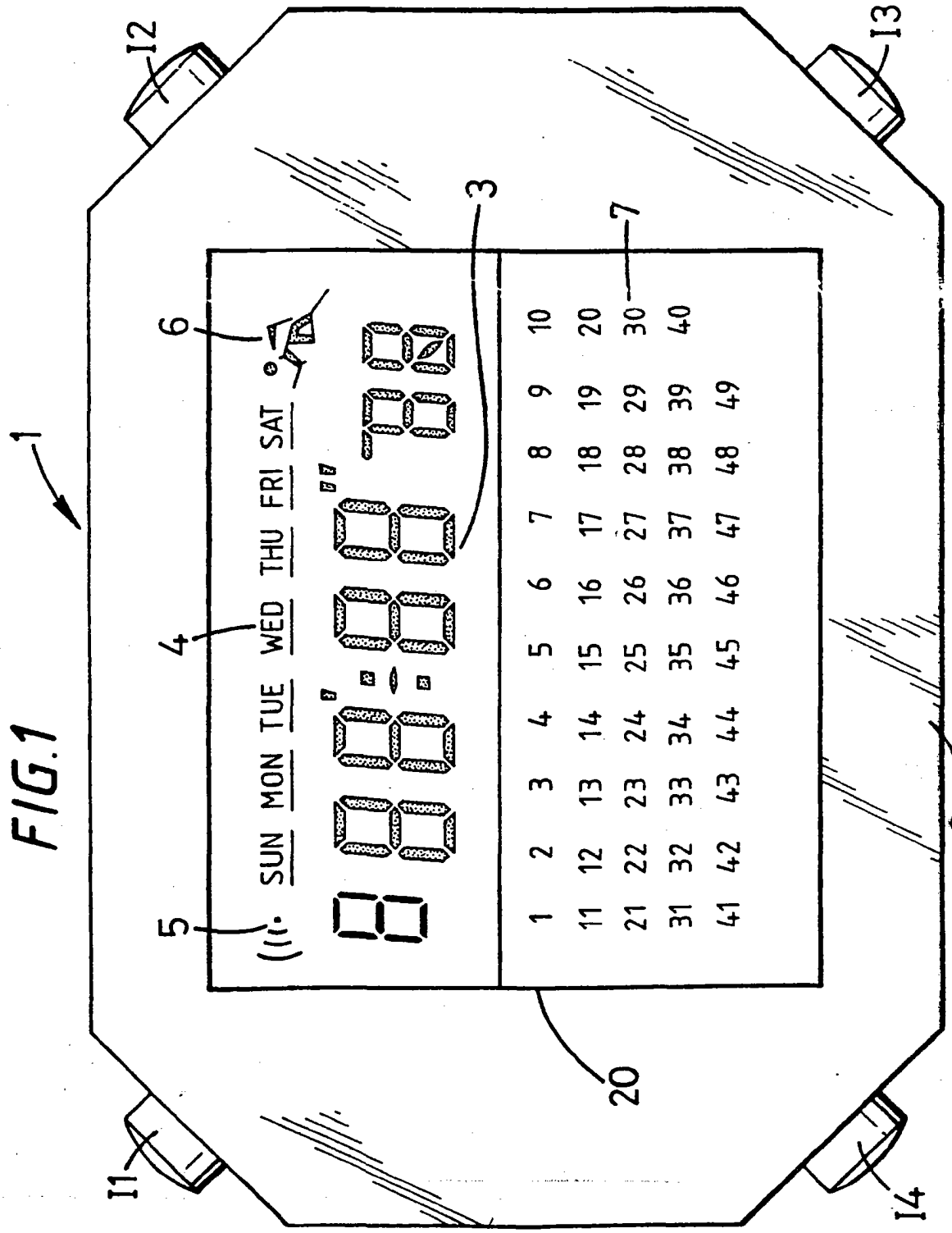
FIG.1


1
2
3
4
5
6
7
11
12
13
14
20
SUN MON TUE WED THU FRI SAT
1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30 40
31 32 33 34 35 36 37 38 39
41 42 43 44 45 46 47 48 49

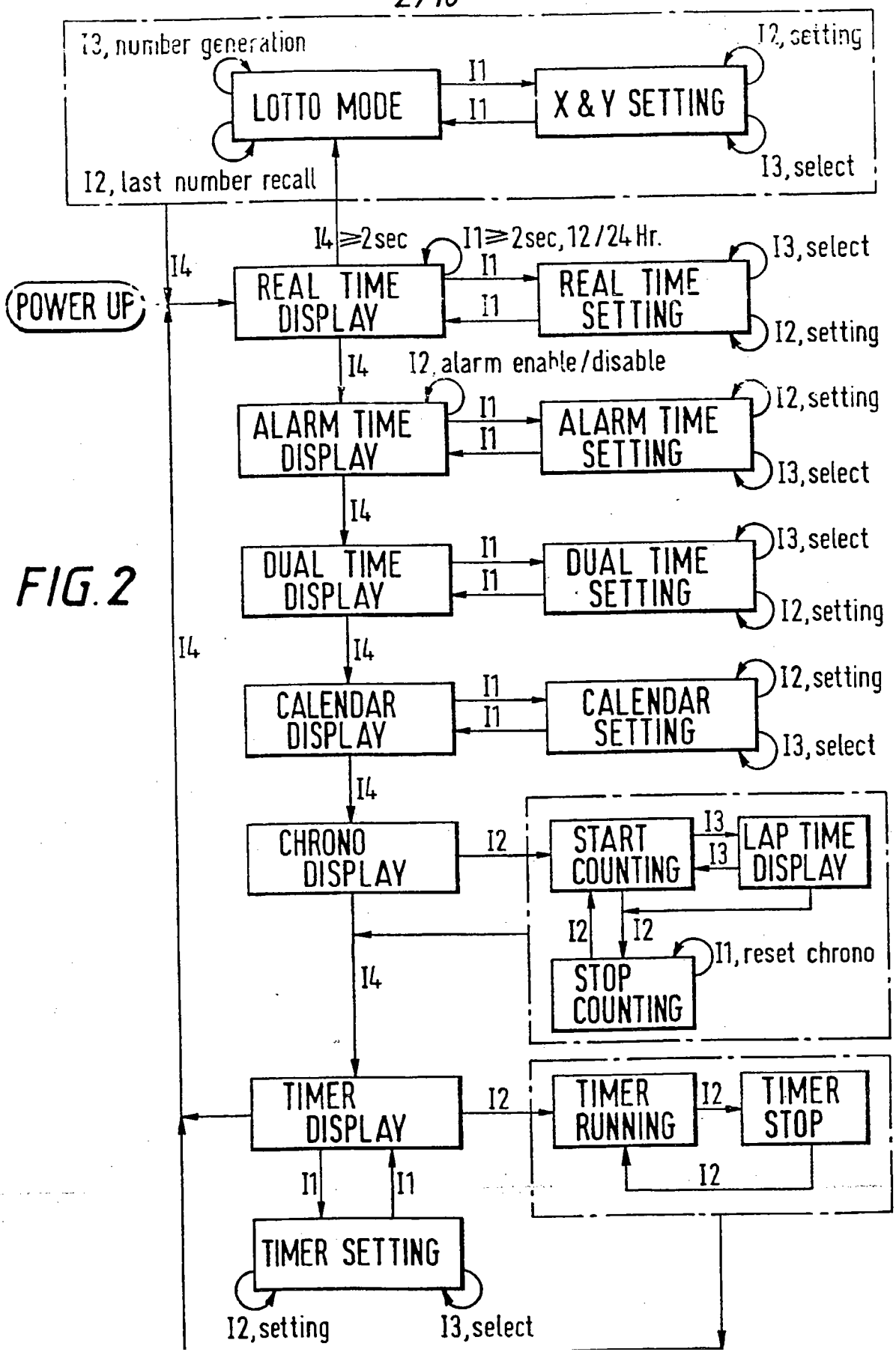

I3, number generation
I2, setting
LOTTO MODE
I1
I1
X & Y SETTING
I3, select
I2, last number recall
I4 ≥2sec
I1 ≥2sec, 12/24 Hr.
I4
POWER UP
REAL TIME DISPLAY
I1
I1
REAL TIME SETTING
I3, select
I2, setting
I4
I2, alarm enable/disable
ALARM TIME DISPLAY
I1
I1
ALARM TIME SETTING
I2, setting
I3, select
I4
DUAL TIME DISPLAY
I1
I1
DUAL TIME SETTING
I3, select
I2, setting
I4
I4
CALENDAR DISPLAY
I1
I1
CALENDAR SETTING
I2, setting
I3, select
I4
CHRONO DISPLAY
I2
START COUNTING
I3
I3
LAP TIME DISPLAY
I2
I2
I1, reset chrono
STOP COUNTING
I4
TIMER DISPLAY
I2
TIMER RUNNING
I2
TIMER STOP
I2
I1
I1
TIMER SETTING
I2, setting
I3, select

FIG. 2

FIG. 3

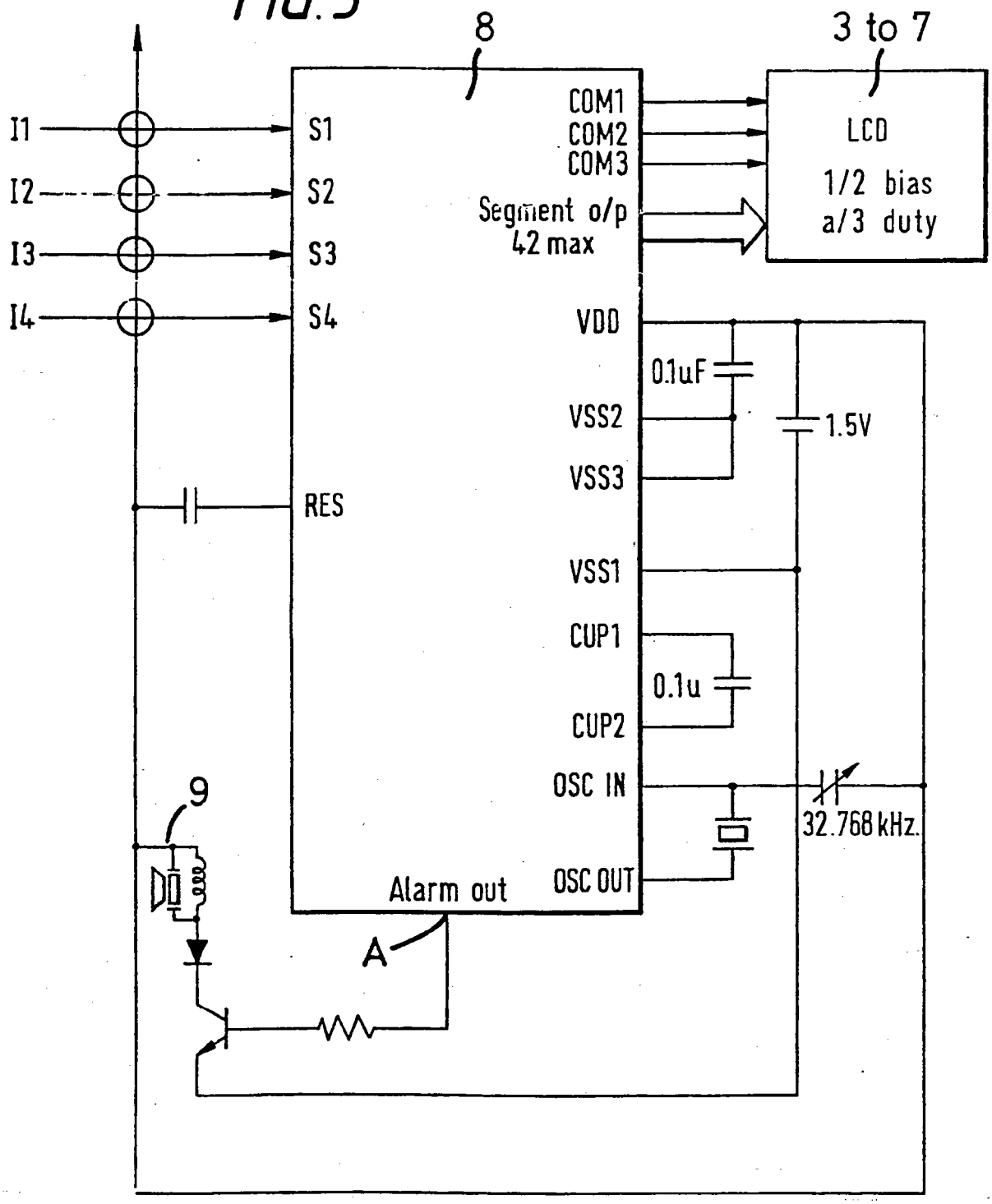

8
3 to 7
I1
I2
I3
I4
S1
S2
S3
S4
RES
COM1
COM2
COM3
Segment o/p
42 max
LCD
1/2 bias
a/3 duty
VDD
0.1uF
VSS2
VSS3
1.5V
VSS1
CUP1
0.1u
CUP2
OSC IN
32.768 kHz.
OSC OUT
Alarm out
A
9

FIG.4

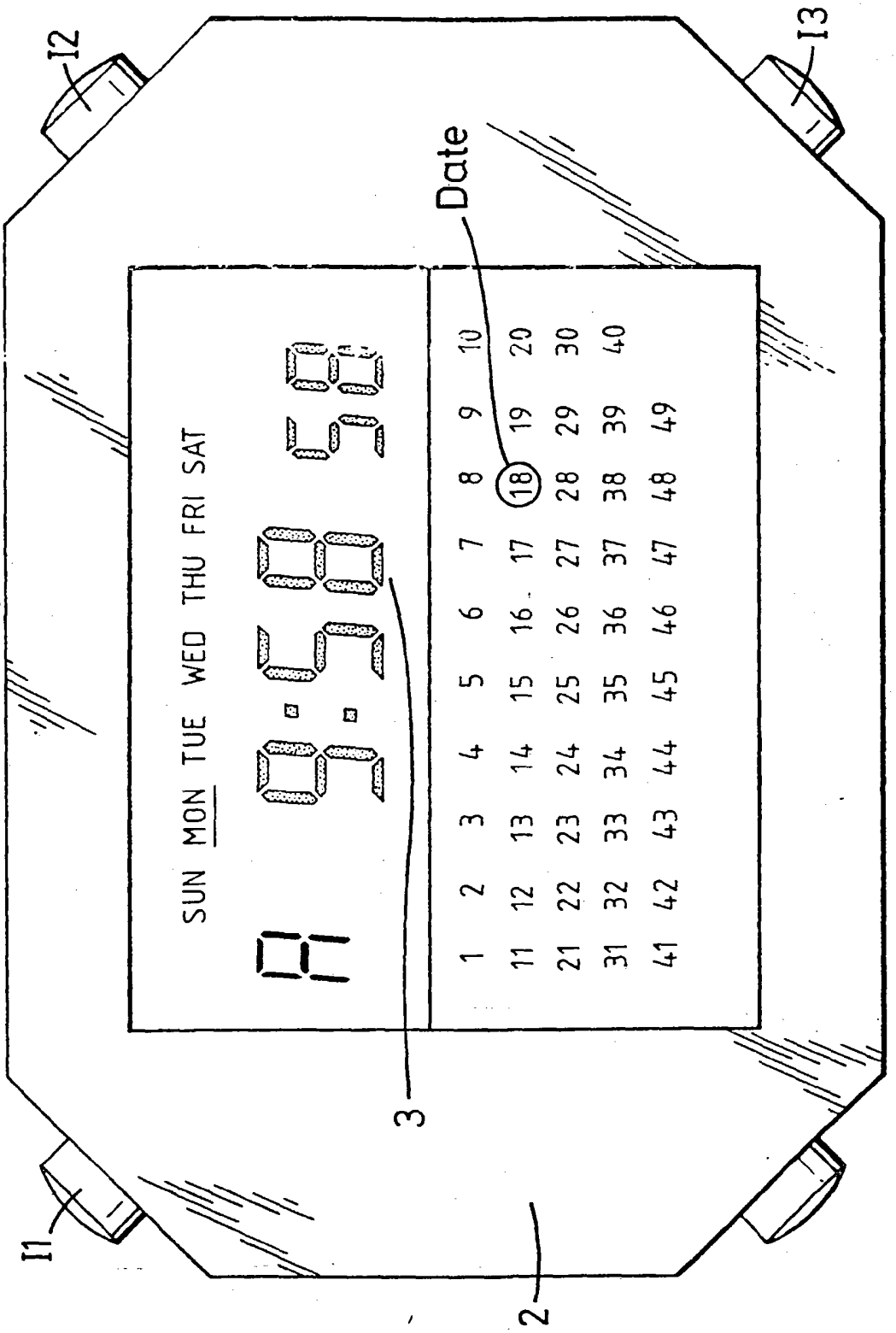

1
2
3
I1
I2
I3
Date
SUN MON TUE WED THU FRI SAT
1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30
31 32 33 34 35 36 37 38 39 40
41 42 43 44 45 46 47 48 49

FIG.5

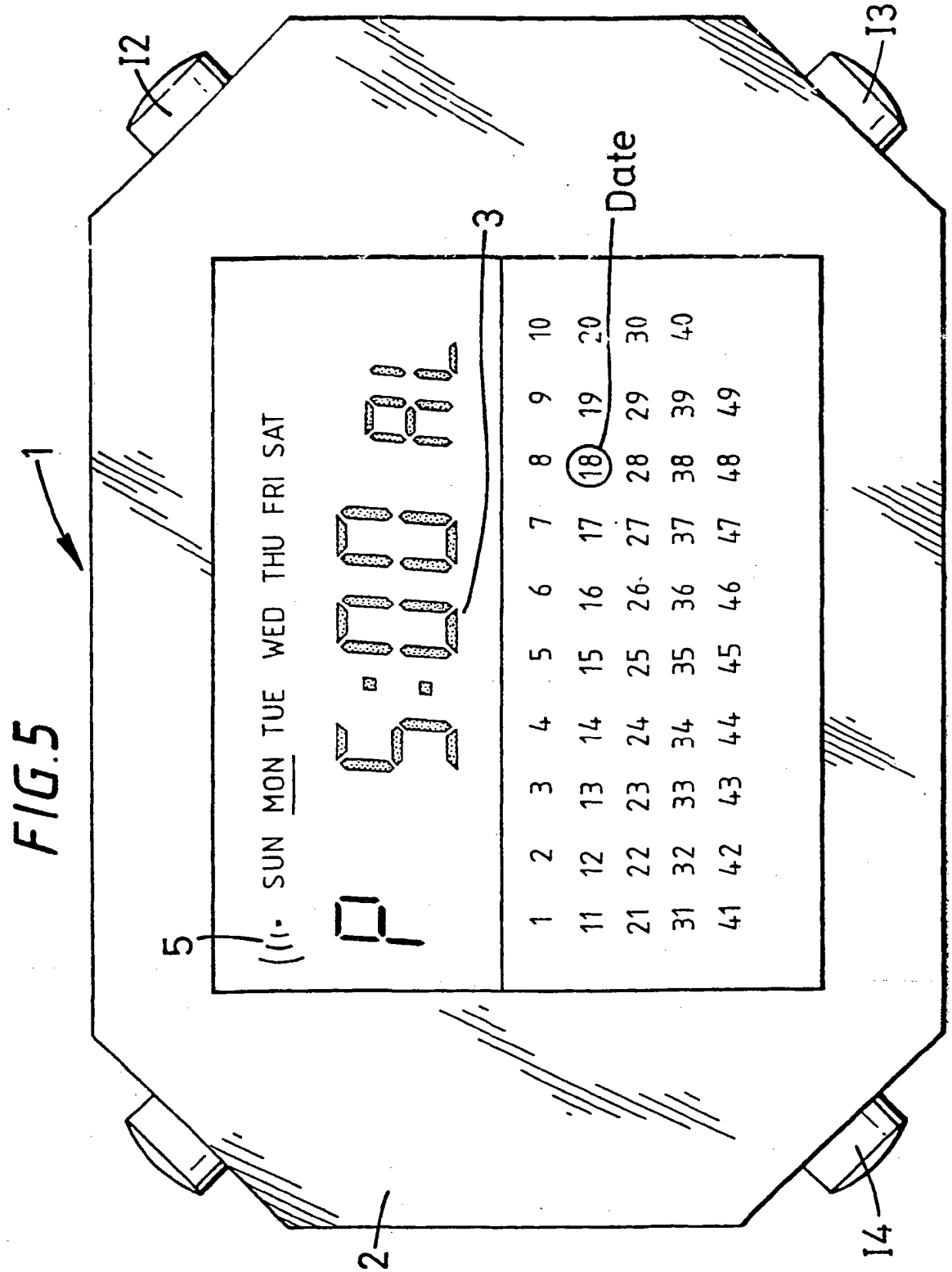

1
2
3
5
12
13
14
Date
SUN MON TUE WED THU FRI SAT
1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30
31 32 33 34 35 36 37 38 39 40
41 42 43 44 45 46 47 48 49

FIG.6

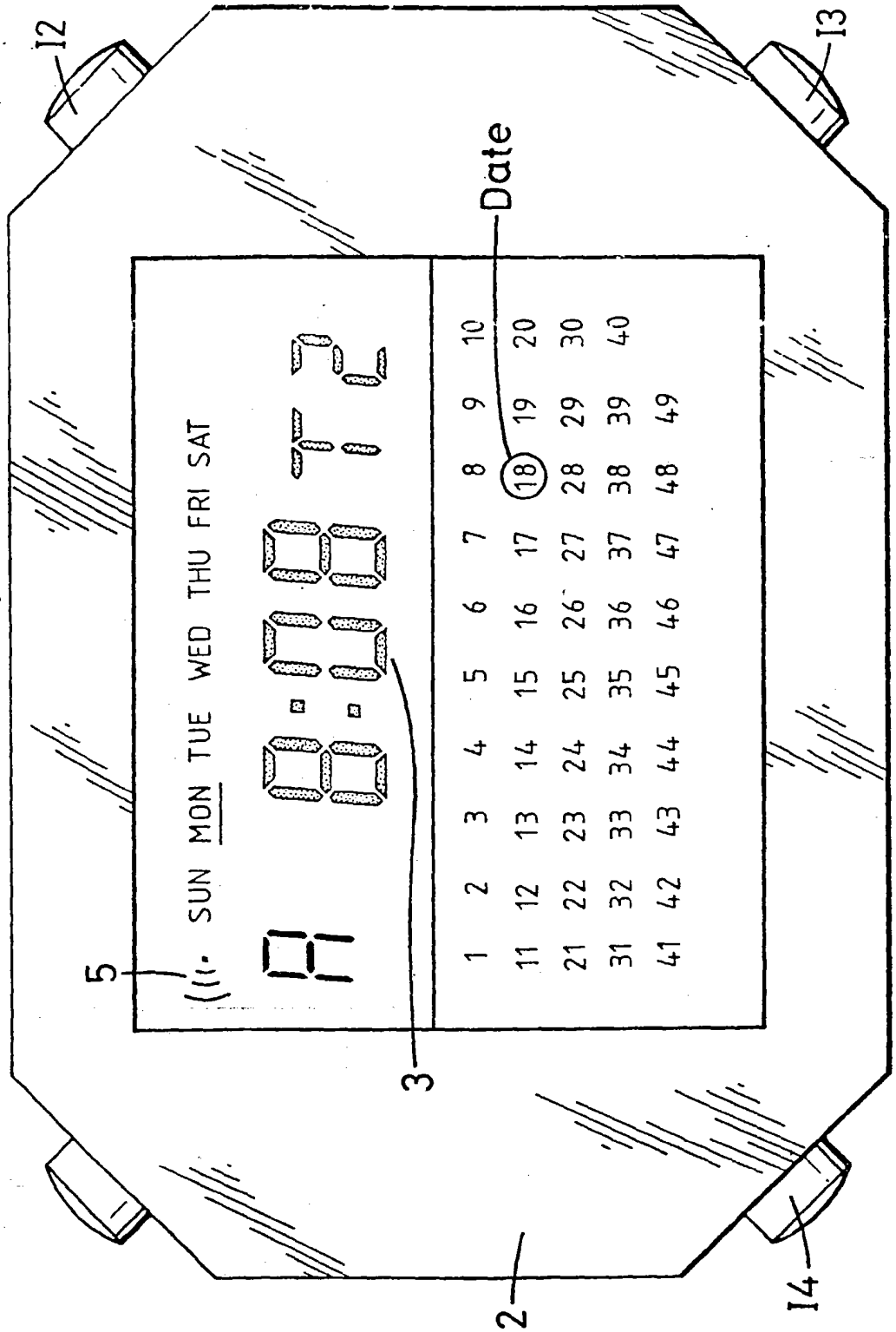

1
2
3
5
12
13
14
Date
SUN MON TUE WED THU FRI SAT
1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30
31 32 33 34 35 36 37 38 39 40
41 42 43 44 45 46 47 48 49

FIG.7

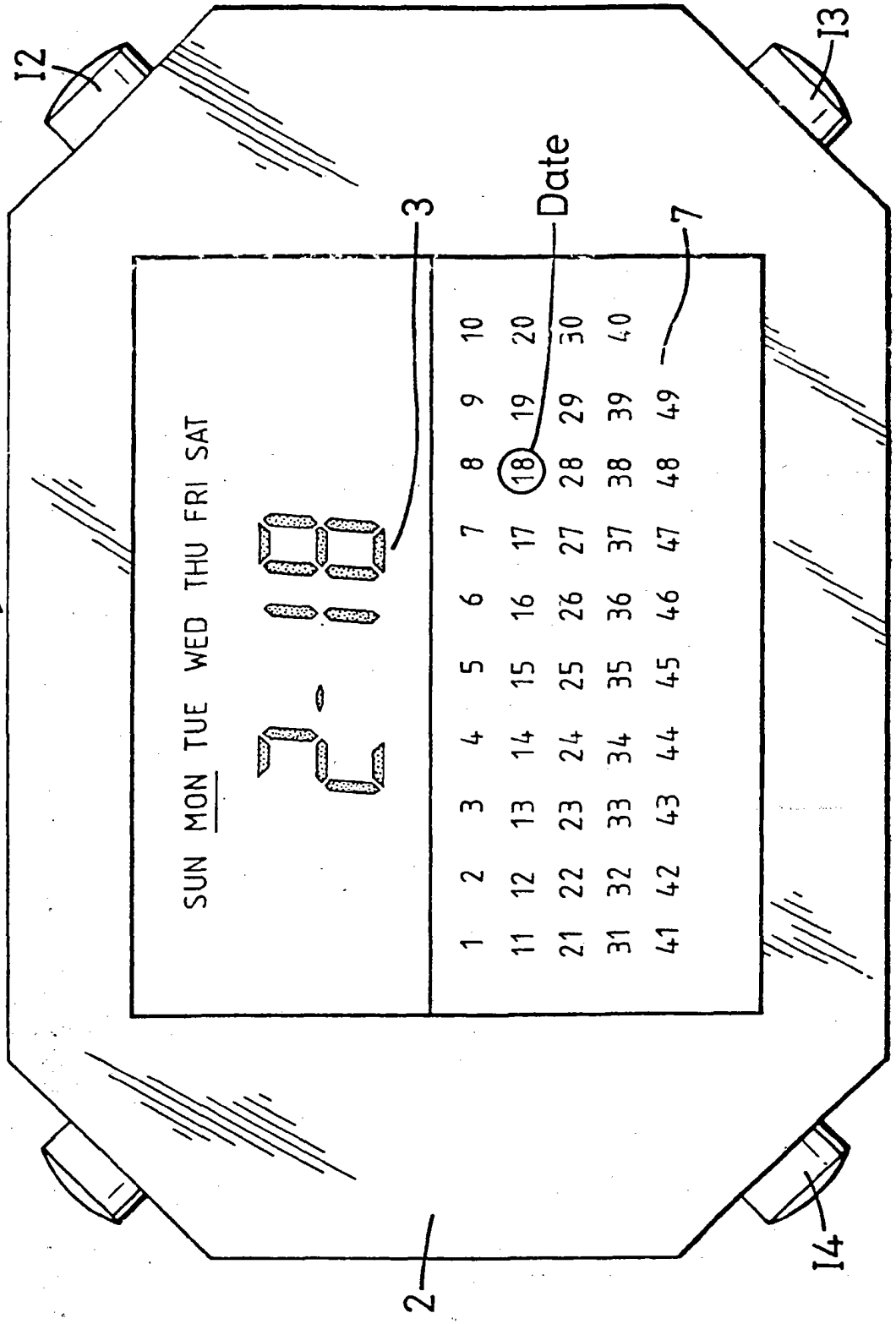

1
2
3
7
12
13
14
Date
SUN MON TUE WED THU FRI SAT
1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30
31 32 33 34 35 36 37 38 39 40
41 42 43 44 45 46 47 48 49

FIG.8

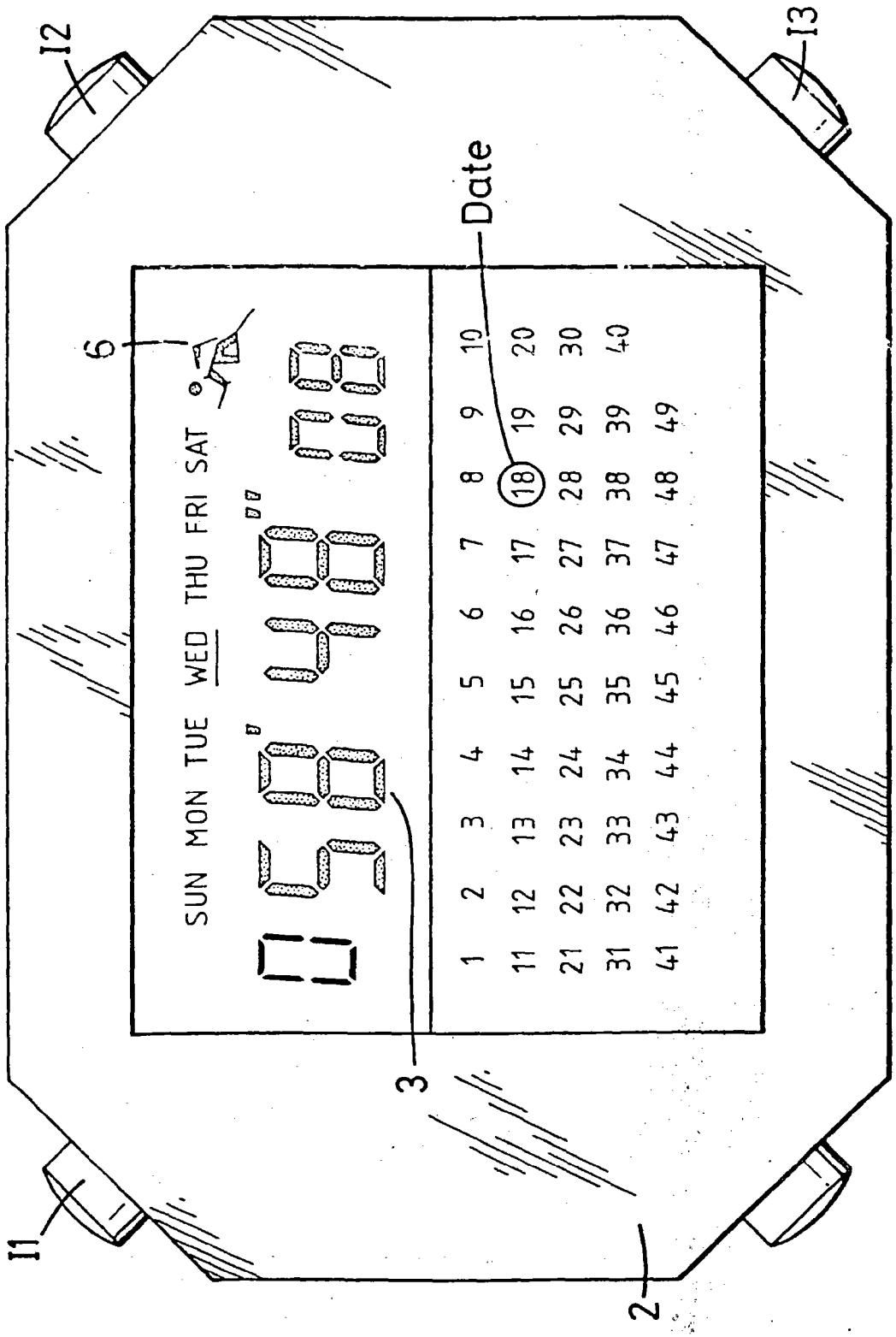

1
2
3
6
I1
I2
I3
Date
SUN MON TUE WED THU FRI SAT
1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30
31 32 33 34 35 36 37 38 39 40
41 42 43 44 45 46 47 48 49

FIG.9

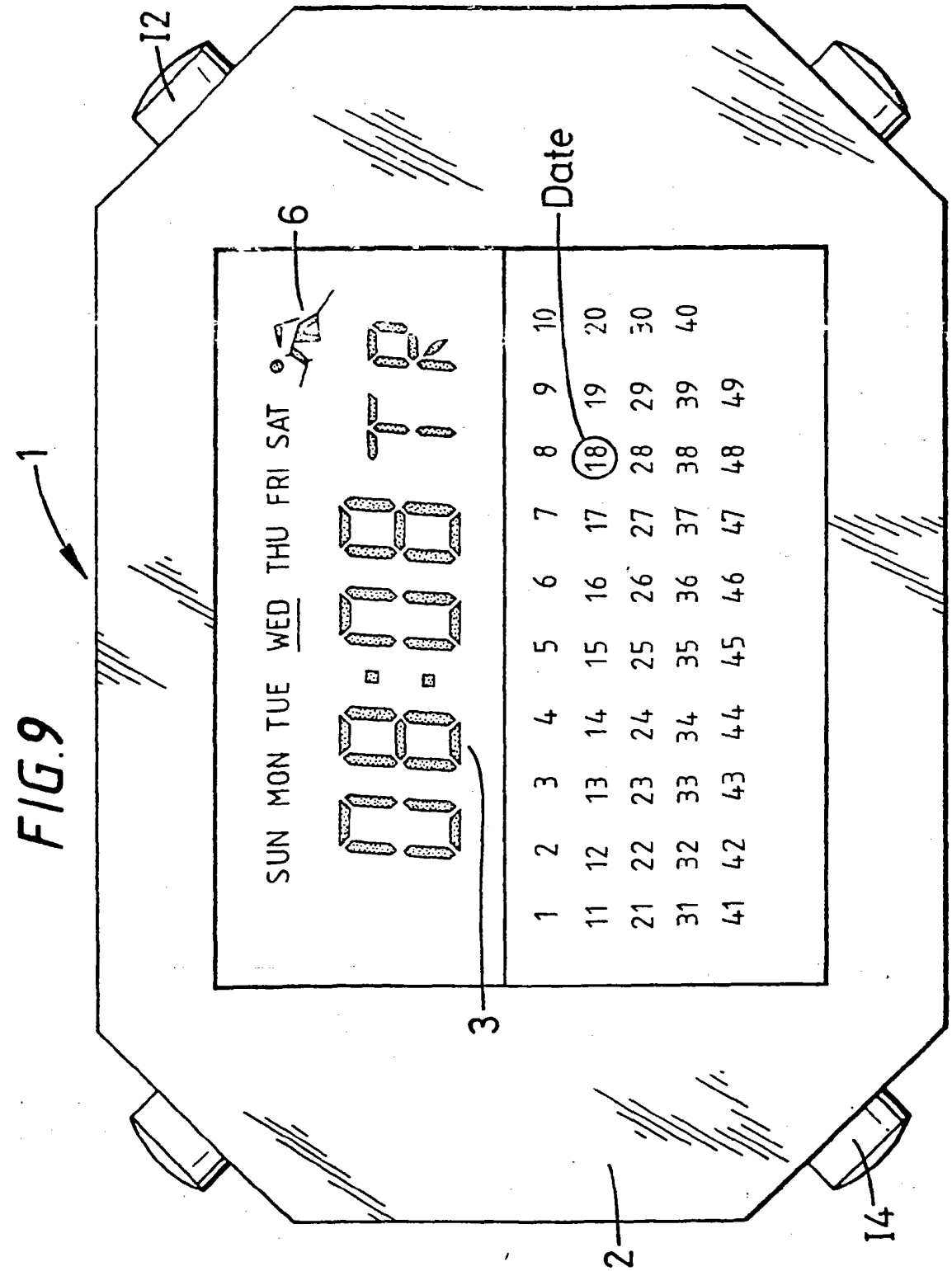
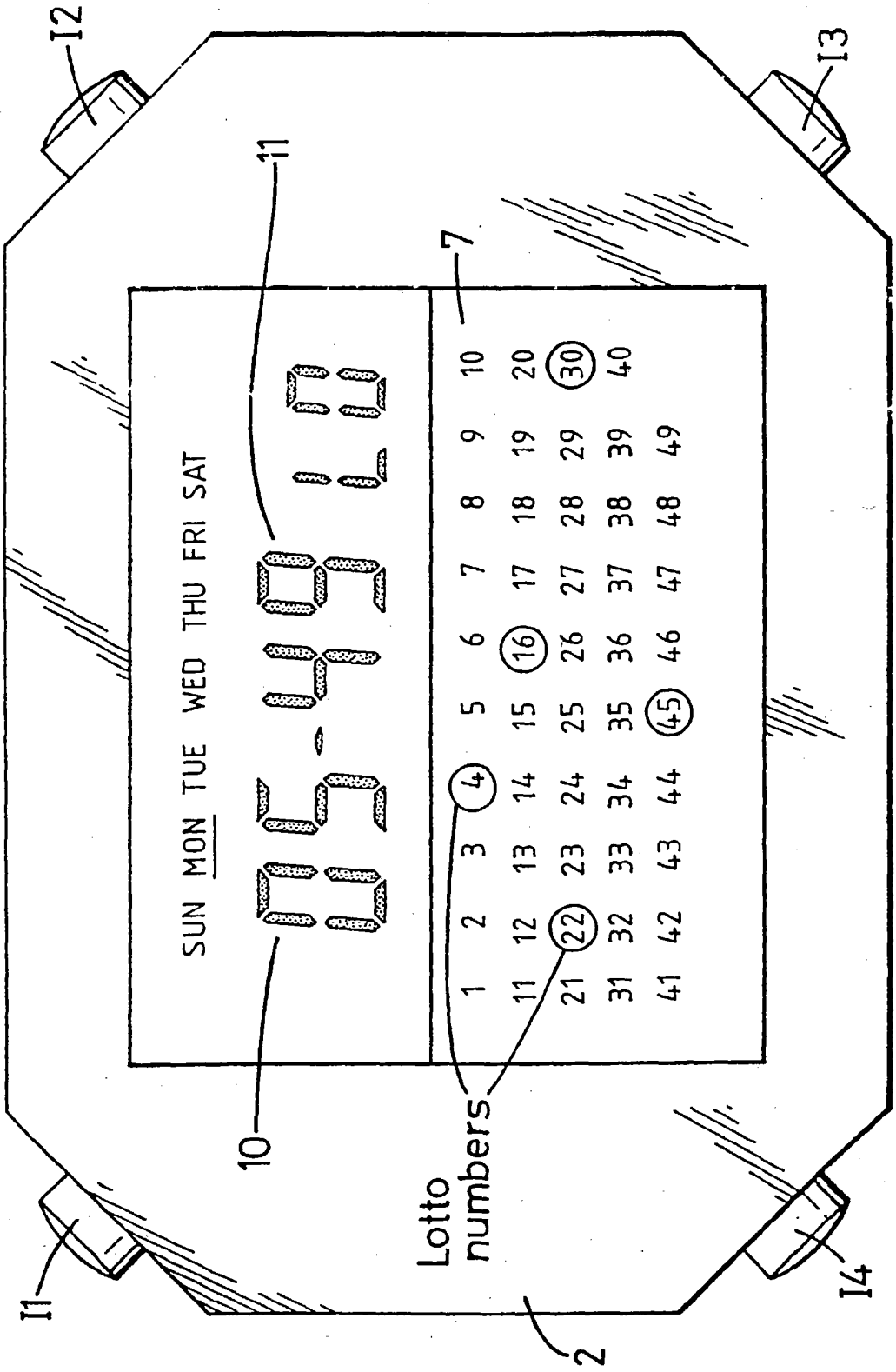

1
12
6
Date
SUN MON TUE WED THU FRI SAT
08:08 TUE
1 2 3 4 5 6 7 8 9 10 20
11 12 13 14 15 16 17 18 19 29 30
21 22 23 24 25 26 27 28 38 39 40
31 32 33 34 35 36 37 38 48 49
41 42 43 44 45 46 47
3
2
14

FIG.10


1
2
10
11
12
13
14
SUN MON TUE WED THU FRI SAT
Lotto numbers
1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30
31 32 33 34 35 36 37 38 39 40
41 42 43 44 45 46 47 48 49

2205180

WATCH

This invention relates to a watch.

In many countries lotteries are run with large cash prizes for the winning selection. Typically, a lottery comprises an array of numbers from 1 to n and competitors must pick a winning selection of X numbers, typically 5 or more within the range 1 to n. When the lottery closes, a random selection of X numbers from the range 1 to n is chosen and if one or more competitors have produced the same winning selection then the or each competitor receives a proportion of the allocated prize money. One of the problems associated with such lotteries is choosing of a winning selection by competitors. Many competitors find it difficult to choose the numbers. At the same time, once the competitor has chosen the numbers in the winning selection, the competitor can commonly forget the numbers comprising the winning selection. Although the chosen numbers can be written

down on the lottery entry card, when the results of the lottery are published the competitor must go searching about for their entry card, even though, in all likelihood, they have not won the prize.

Consequently, there is a need for a simple method of aiding competitors to choose their lottery numbers and at the same time to store the numbers in an easily accessible form.

According to the invention there is provided a watch including display means for displaying a range of integers 1 to n; user actuable generating means for randomly generating X integers within a range from 1 to n; means for storing the most recently generated X integers; and means connected to retrieve the stored X numbers in response to user actuation and to cause display of the X integers.

Preferably the generating means has a user operable control for varying the value of X and for restricting the range to less than 1 to n from which the X numbers are generated. Conveniently, X has a value of 5 to 26 and the range is from 1 to 30 up to 1 to 49.

An example of the present invention will now be described with reference to the accompanying drawings in which:-

Figure 1 illustrates a watch embodying the present invention,

Figure 2 illustrates a flow diagram for the operation of the present invention,

Figure 3 illustrates the control circuit for the watch of the present invention,

Figure 4 illustrates the facia in real time display mode,

Figure 5 illustrates the facia in alarm time display mode,

Figure 6 illustrates the facia in dual time display mode,

Figure 7 illustrates the facia in date display mode,

Figure 8 illustrates the facia in chrono display mode,

Figure 9 illustrates the facia in timer display mode,

Figure 10 illustrates the facia in lotto display mode.

Referring to Figure 1, a watch 1 has an outer casing 2 locating four switches I1, I2, I3 and I4. The casing also includes a facia 20 as shown in Figure 1. The

facia 20 comprises a liquid crystal display in which the upper portion can display a series of numerical digits 3 immediately below printed indications 4 of days of the week. Each day of the week can be highlighted by a displayable section located thereunder. To the left of the days of the week 4 there is a sign 5 (as illustrated) indicating that an alarm has been set and on the right of the display of the days of the week 4 there is a runner 6 (as illustrated) indicating the chrono is running. Below the numerical display 3, there is provided a table 7 of integers 1 to 49. Each integer in table 7 has associated therewith a display element (not shown) for encircling each number of the table so as to highlight it.

Figure 3 illustrates a circuit provided within the casing 2. The circuit comprises a processing unit 8 having four inputs S1, S2, S3 and S4 connected to switches I1, I2, I3 and I4 respectively so that on depression of one of these switches, a signal appears at the appropriate input of the processing unit 8. The unit 8 can comprise a single chip micro- computer such as a Sanyo LC 5805. The unit is connected to the

liquid crystal display facia 20 containing components 3 to 7 and also to an alarm bleeper 9 which is connected to an alarm output A of the unit 8. The remaining components illustrated in Figure 3 will be apparent to a person skilled in the art. The function of the four switches I1 to I4 is illustrated with reference to Figure 2.

The switch I1 has three modes:

i. Enter or exist setting mode.
ii. Press and hold for 2 seconds to toggle 12/24 Hr. display format.
iii. Reset Chrono as the stop watch is stop.

The switch I2 has five modes as follows:

i. Digit setting.
ii. Enter or exit the Lotto mode.
iii. Start or stop the Chrono.
iv. Start or stop the timer.
v. Alarm enable or disable at Alarm Display Mode.

The switch I3 has three different modes:

i. Select digit to be set.

ii. Activate or release the Lap Time mode.

iii. Recall the last group of random numbers in the Lotto mode.

The switch I4 has two modes:

i. Mode change.

ii. Generate random numbers.

When the watch is powered up, the unit 8 ensures that the facia 3 illustrates the real time currently being stored. This is the real time display mode. An example of this mode is shown in Figure 4. It can be seen that the numerical section 3 is illustrating a time of 9hrs. 58 mins. and 58 secs. AM. It will be apparent from Figure 2 that depression of switches I3 and I2 can alter the real time setting when the switch I1 is depressed a sufficient time to enter the setting mode.

Figure 5 illustrates the facia 3 in the alarm time display mode which can be displayed by pressing switch I4 with the watch in the real time display mode. The setting of the alarm time is altered by depression of a combination of switches I2 and I3 and the alarm enable and disable is actuated by depression of key I2. The alarm time shown in Figure 5 is 5 o'clock pm. When the alarm time matches the real time, the unit 8 actuates the alarm 9 to issue an alarm signal for 20 seconds. The alarm signal takes the form of paired bleeps, each bleep having a tonal frequency of 1 kilo hertz.

A dual time display mode is entered by depression of the switch I4 with the watch in the alarm time display mode, this is illustrated in Figure 6. As shown in Figure 2, depression of switches I2 and I3 can select a second parallel time mode suitable for storing an overseas time.

The date can be displayed by depression of the switch I4 with the watch in the dual time mode. Depression of a combination of switches 2 and 3 can alter the date illustrated, for example Figure 7 illustrates a date

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of 18th February. It should be noted that the number of the day of the month is displayed by highlighting the appropriate number in the table 7.

In order to enter the chronograph mode, switch I4 is depressed with the watch in the date display mode The control unit 8 then causes the facia 3 to assume the format shown in Figure 8. As shown in Figure 2, the start or stopping of counting is actuated by depression of switch I2. During chrono running, a first depression of switch I3 activates the lap time display mode and a second depression of switch I3 releases the lap time display mode. Resetting of the chrono occurs by depression of switch I1 when the chrono has been stopped.

A timer mode may be entered by depressing switch I4 with the watch in the chronograph mode wherein the facia form can take the form shown in Figure 9. The setting procedure is the same as in the real time mode with start or stopping of the timer by depression of switch I2. When the timer counts down to zero, the unit 8 causes the bleeper 9 to produce two bleep tones, each bleep at a frequency of 1 kilo hertz.

The control unit also has the facility that when switch I4 is depressed for greater than 2 seconds, in the real time mode, the unit 8 enters the lotto mode. The unit 8 incorporates a random number generator which is actuated by switch I3 with the watch in the lotto mode. Randomly selected numbers from the table 7 will then be highlighted by actuation of the respective encircling device. For example, Figure 10 illustrates the numbers 4, 16, 22, 30 and 45 as being selected. The bleeper 9 is actuated to bleep during the random selection. When the switch I3 is released, the beep tone stops and the circles stay on the numbers generated. Thus, a winning selection of numbers for use in a lottery can be chosen. In order to allow flexibility for different lotteries, it is possible for different amounts of numbers X to be chosen from the table 7. This is achieved by depressing switch I1 in the lotto mode to enter the setting mode. Depression of switch I3 can cause flashing of the figures labelled 10 in Figure 10. The figure shows 5 numbers to be selected. However, depression of switch I2 can alter this number in the range preferably, from 5 to 26. At the same time, not all lotteries employ 49 numbers and many include less.

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Consequently, further depression of switch I3 can cause flashing of the number indicated by numeral 11 in Figure 10 whereby further depression of switch I2 can alter the maximum value of the random number. The number shown in Figure 10 is 49. However, the range available to be selected is preferably in the range of 30 to 49. The last group of random numbers produced by the watch are stored and can be recalled by pressing of switch I2 during the lotto mode. Consequently, it is possible for a user of the watch to define an upper value for the lottery and also to choose how many numbers are generated from within that maximum as a winning selection. The choice is entirely random and therefore does not cause the user of the watch any problem in choosing of the numbers. The actual winning selection is stored and can be recorded easily so that when the results of the lottery are published, the owner of the watch of the present invention merely has to enter the lotto mode and depress the switch I2 to recall their selection and quickly and easily see whether they have won the lottery.

The unit 8 has the further facility that the display returns to the real time display mode after 1 to 2 minutes if no switches are depressed and the watch is neither functioning in the chrono running display mode nor in time running display mode. The operating voltage is preferably 3 volts and at a frequency of 32.768 kilo hertz.

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CLAIMS

1. A watch including display means for displaying a range of integers 1 to N;

user actuable generating means for randomly generating X integers within a range from 1 to N;

means for storing the most recently generated X integers; and

means connected to retrieve the stored X numbers in response to user actuation and to cause said display means to display the X integers.

2. A watch as claimed in Claim 1 wherein said generating means includes user operable control means for varying the value of X.

3. A watch as claimed in Claim 2 wherein the generating means includes further user operable control means for restricting the range to less than 1 to N from which said X numbers are generated.

4. A watch as claimed in any preceeding claim wherein X has a value of 5 to 26 and N has a value between 30 to 49.

5. A watch substantially as herein described with reference to the accompanying drawings.

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